Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): A cardiac conduit system ~~for monitoring one or more physiological parameters for diagnosis of cardiac conduit condition in patients heart disease, said system~~ comprising:

an implantable cardiac conduit adapted for carrying blood flow to bypass a conduit of a patient' heart when implanted in the patient;

at least one sensing device chronically located within said cardiac conduit, ~~One or more implantable sensing devices,~~ said sensing device comprising of at least one inductor coil and at least one ~~sensor~~ means for monitoring one or more physiological parameters for diagnosis of the condition of said cardiac conduit after said cardiac conduit is implanted in the patient, with optional electronic components; and

a non-implantable readout device comprising ~~A non-implantable readout device, said readout device comprising of~~ at least one inductor coil allowing electromagnetic telecommunication and electromagnetic wireless

powering of said sensing device through said at least one inductor coil of said sensing device.

Claim 2 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one ~~implantable~~ sensing device comprises of at least one capacitive sensor.

Claim 3 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one ~~implantable~~ sensing device includes a battery.

Claim 4 (Currently amended): The cardiac conduit system of claim 4 wherein said battery is rechargeable using wireless means.

Claim 5 (Currently amended): The cardiac conduit system of claim 1 wherein said physiological parameters include pressure.

Claim 6 (Currently amended): The cardiac conduit system of claim 1 wherein said physiological parameters include pressure gradient.

Claim 7 (Currently amended): The cardiac conduit system of claim 1

wherein said cardiac conduit is adapted to be implanted in the patient so that after said cardiac conduit is implanted in the patient said at least one sensing device measures at least one ~~one or more sensing devices are measuring one or more~~ of the following pressures: pulmonary artery, left atrium, right atrium, left atrium appendage, right atrium appendage, mean left atrium pressure, mean right atrium pressure, differential pressure between left and right atrium.

Claim 8 (Currently amended): The cardiac conduit system of claim 7 further comprising means for calculating ~~wherein said system calculates the~~ change of pressure over time, dp/dt.

Claim 9 (Currently amended): The cardiac conduit system of claim 1 wherein said cardiac conduit is chosen from the group consisting of homograft, heterograft, and artificial conduits. ~~said implantable sensing devices are located within said conduit.~~

Claim 10 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one sensing device is located at one end of said cardiac conduit. ~~implantable sensing devices are located at one or both ends of said conduit.~~

Claim 11 (Currently amended): The cardiac conduit system of claim 10 wherein said at least one sensing device comprises a second sensing device at a second end of said cardiac conduit. ~~system of claim 1 wherein said implantable sensing devices are located in the vicinity of the conduit.~~

Claim 12 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one ~~implantable~~ sensing device is adapted to indicate occlusion of said cardiac conduit. ~~used for indication of occlusion.~~

Claim 13 (Currently amended): The cardiac conduit system of claim 12 wherein said at least one sensing device comprises a second sensing device and said ~~system of claim 1 wherein at least two implantable~~ sensing devices are located on said cardiac conduit so as to be operable ~~used~~ for locating the occlusion.

Claim 14 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one sensing device comprises a second sensing device and said ~~at least two implantable~~ sensing devices are adapted for measuring ~~used for measurement of~~ flow rates through said cardiac conduit.

Claim 15 (Currently amended): The cardiac conduit system of claim 1 wherein data from said at least one sensing device are useful to estimate ~~implantable sensing devices is used for estimation of~~ time-to-failure within said cardiac conduit.

Claim 16 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one sensing device and said readout device are adapted for use ~~implantable sensing devices are used~~ for one or more of the following diagnosis: assessment of stenosis, assessment of occlusion assessment of inefficiency of said cardiac conduit. ~~cardiac conduits.~~

Claim 17 (Currently amended): The cardiac conduit system of claim 1 wherein one or more of the following schemes are used to couple said at least one sensing device to said readout device: resonant, passive, active.

Claim 18 (Currently amended): The cardiac conduit system of claim 1 wherein said one or more physiological parameters are ~~the physiologic parameter being measured is~~ one or more of the following parameters: pressure, temperature, flow, blood composition, blood gas content, chemical composition, chemical concentration, acceleration, vibration.

Claim 19 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one sensing device and said readout device are adapted for use ~~system is used~~ for one or more of the following applications: early diagnosis of stenosis in said cardiac conduit, ~~cardiac conduits,~~ early diagnosis of occlusion in said cardiac conduit, ~~cardiac conduits,~~ early diagnosis inefficiency of said cardiac conduit, ~~cardiac conduits.~~ early diagnosis of congenital ~~congenitial~~ heart diseases and related conditions, early intervention in treatment of congenital heart diseases and related conditions, remote monitoring of patients with congenital heart diseases and related conditions, tailoring of medications, disease management, identification of complications from the condition of said cardiac conduit ~~conduit condition~~ in patients with congenital heart diseases related conditions, identification of complications from the condition of said cardiac conduit ~~conduit condition~~ in patients with congenital heart diseases related conditions, treatment of complications from the condition of said cardiac conduit ~~conduit condition~~ in patients with congenital heart diseases related conditions, treatment of complications from the condition of said cardiac conduit ~~conduit condition~~ in patients with congenital heart diseases conditions, feedback regarding the impact of medication on the heart, reduction in frequency and severity of hospitalizations due to congenital heart diseases, reduction in frequency and

severity of hospitalizations due to congenital heart diseases, identification of mitral valve stenosis, and treatment of mitral valve stenosis including ~~but not limited to~~ surgery and balloon angioplasty,

Claim 20 (Currently amended): The cardiac conduit system of claim 1 wherein said readout device is capable of performing one or more of the following: remote monitoring of said cardiac conduit ~~cardiac conduits~~ in heart disease patients, including ~~but not limited to~~ home monitoring, monitoring of said cardiac conduit ~~cardiac conduits~~ in heart disease patients with telephone-based (or similar method) data and information delivery, monitoring of said cardiac conduit ~~cardiac conduits~~ in heart disease patients with wireless telephone-based (or similar method) data and information delivery, monitoring of said cardiac conduit ~~cardiac conduits~~ in heart disease patients with web-based (or similar method) data and information delivery, closed-loop drug delivery to treat heart disease, closed-loop tuning of medical systems to treat heart disease or congenital heart disease related conditions, warning systems for critical worsening of said cardiac conduit ~~cardiac conduits~~ in heart disease patients, portable or ambulatory monitoring or diagnostic systems, battery-operation capability, data storage, reporting global positioning coordinates for emergency applications, communication with other medical

devices including ~~but not limited to~~ pacemakers, defibrillator, implantable cardioverter defibrillator, implantable drug delivery systems, non-implantable drug delivery systems, and wireless medical management systems.

Claim 21 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one ~~implantable~~ sensing device comprises means for anchoring said at least one sensing device to said cardiac conduit. ~~is implanted using a minimally invasive outpatient technique.~~

Claim 22 (Canceled)

Claim 23 (Currently amended): The cardiac conduit system of claim 21, wherein said anchoring means comprises at least one ~~system of claim 1, wherein said implantable sensing device uses anchoring mechanisms including but not limited to those~~ anchoring mechanism used in one or more of the following: septal occluder devices, left atrial appendage occluders, cardiac pacing leads, screws, tines, stents.

Claim 24 (Currently amended): The cardiac conduit system of claim 21 ~~system of claim 23~~ wherein said anchoring means ~~mechanism~~ is a part of

said cardiac conduit. ~~the conduit.~~

Claims 25 through 28 (Canceled)

Claim 29 (Currently amended): The cardiac conduit system of claim 21 ~~system of claim 23~~ wherein said anchoring means ~~mechanism~~ is a helical screw.

Claim 30 (Currently amended): The cardiac conduit system of claim 21 ~~system of claim 23~~ wherein said anchoring means is a tine. ~~mechanism is a tine that expands and catches on a tribeculated area of the heart.~~

Claim 31 (Currently amended): The cardiac conduit system of claim 21 ~~system of claim 23~~ wherein said anchoring means ~~mechanism~~ is made from one or more materials chosen from the group consisting of ~~or any combination thereof the following materials:~~ nitinol, teflon, stainless steel, polymer, titanium, and biocompatible metals.

Claim 32 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one ~~implantable~~ sensing device is augmented with one

or more actuators chosen from the group consisting of ~~including but not limited to:~~ thermal generators, voltage sources, current sources, probes, electrodes, drug delivery pumps, valves, meters, microtools for localized surgical procedures, radiation emitting sources, defibrillators, muscle stimulators, and pacing stimulators.

Claim 33 (Currently amended): The cardiac conduit system of claim 1 wherein said cardiac conduit system is part of a closed-loop medical treatment system.

Claim 34 (Currently amended): The cardiac conduit system of claim 1 wherein at least a portion of said at least one ~~implantable~~ sensing device is coated with one or more layers of thin coatings.

Claim 35 (Currently amended): The cardiac conduit system of claim 34 wherein the one or more layers of thin coatings are formed of one or more coating materials chosen from the group consisting of ~~include but are not limited to one or more or any combination thereof:~~ silicone, hydrogels, parylene, polymer, nitrides, oxides, nitric-oxide generating materials, carbides, silicides, and titanium.

Claim 36 (Currently amended): The cardiac conduit system of claim 1 wherein said cardiac conduit is adapted for carrying blood flow to bypass valve aplasia or severe stenosis of the patient' heart, and said cardiac conduit includes a valve.

Claim 37 (Currently amended): The cardiac conduit system of claim 36 wherein said cardiac conduit system is incorporated into a ~~into an~~ closed-loop system for control of said valve in said cardiac conduit.

Claim 38 (Currently amended): The cardiac conduit system of claim 36 wherein said cardiac conduit system is incorporated into an open-loop system for control of said valve in said cardiac conduit.